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Beth Caruso and Alison D. Bradley, "How Do We Study Satisfaction With Academic E-Book Collections?" (2015). *Proceedings of the Charleston Library Conference*.
<http://dx.doi.org/10.5703/1288284316290>

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How Do We Study Satisfaction With Academic E-Book Collections?

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Abstract

Much of the existing literature on patron satisfaction with e-books in academic settings does not differentiate between platforms, formats, and other conditions that drastically change the user's ability to read, annotate, and use e-book content. The Charlotte Initiative is a project funded by the Mellon Foundation to convene a working group that investigates principles for permanent acquisition of e-books for academic libraries. As part of this project, a user experience research team has been created to review the existing literature on patron satisfaction with multiple aspects of e-books. During summer 2015, this research team began a meta-study to determine areas of the user experience with e-books in academic libraries that have been studied comprehensively and to identify areas that have not received formal evaluation. In this paper, we not only convey the results of our research team's literature review but also provide criteria that librarians and institutions can use to guide assessments of user experience with e-books in academic library settings.

Introduction

Much of the existing literature on patron satisfaction with e-books in academic settings does not differentiate between platforms, formats, and other conditions that drastically change the user's ability to read, annotate, and use e-book content. This is a primary area of research being investigated by the Charlotte Initiative—a project funded by the Mellon Foundation to convene a working group of librarians, non-profit publishers, and consortial executives to study the permanent acquisition of e-books for academic libraries. Specifically, the project will consider ways that three core principles can affect the library market for the scholarly monograph in e-book format: unlimited simultaneous users, no digital rights management, and irrevocable perpetual access and archival rights.

As part of this project, a user experience research team was charged with reviewing the existing literature on patron satisfaction with e-books in order to conclude how academic libraries currently assess and evaluate patron satisfaction with their e-book collections. During the summer of 2015, the co-principal investigator and research assistant for the user experience research team designed and implemented a literature review

and meta-study of the published literature on user satisfaction with e-books in academic libraries, in hopes of revealing how the current research climate might inform library best practices in e-book collecting.

A critical issue for the Charlotte Initiative is the impact of digital rights management (DRM) on the user, particularly in the ways the variations in DRM on e-book platforms can limit the use of academic e-book collections. From a user experience (UX) standpoint, we're considering DRM to be the technological restrictions on the use of content—the ways in which the product is designed that prevent people from doing the things they need or want to do through use of proprietary software formats that restrict access to or manipulation of the content of the e-book. DRM in this context is frequently raised as an issue in discussions of user opinions of e-books for academic use.

Methods

Since our charge was to review the published literature, we began by searching both the Library, Information Science, & Technology Abstracts with Full Text (LISTA) and the Library and Information Science Abstracts (LISA) databases, using the search terms "SU: electronic books AND academic

libraries” (2,416 results) and “e-books AND academic libraries” (1,977 results). Other search terms were used, but yielded minimal results or many overlaps. Additionally, we reviewed several bibliographies to discover pieces that were not accounted for in the database searches and those regarding parallel subjects of potential use. Overall, we compiled 373 citations and abstracts into a shared spreadsheet, and once reviewed, coded 146 of them. We accounted for components such as the platforms or publishers studied in the articles (such as Springer, NetLibrary/EBSCOHost, Ebrary, Safari, and MyiLibrary); the DRM types addressed, if any (such as highlighting, note-taking, and file manipulation); the user group studied (which included any combination of students, faculty, librarians, libraries, researchers, and consortia); and the type of study conducted. Additionally, we noted the content of the study and how or if the study makes larger conclusions about UX, aside from simple like/don't like dichotomies, as well as those that warranted further consideration because of how they studied or discussed key issues in unique ways. We wanted to learn if an author concluded something about how users feel about e-books and whether or not they addressed differences in e-book platforms in reaching those conclusions. However, because these studies do not account for the same types of conclusions in the same ways, coding for conclusions and conclusion type was more difficult than expected. Within the set of 146 coded articles, we determined that 95 offer some conclusion about user satisfaction, meaning that the author makes a claim about their users' opinions, perceptions, or acceptance of e-books.

Variations in Precision of Study

The precision of the research reviewed varied a great deal. Some studies listed specific platforms available at their libraries, but often would not ask the subjects of the study to identify which platform they were most familiar with using. Many studies provided feedback specific to certain types of format and restriction that are not universal features of e-book collections. In other cases, this would lead to participants in the same study providing contradictory statements,

with some respondents stating a dislike of e-books due to the inability to download or print while others in the same study cited ease of downloading and printing as a benefit of the collections. Many studies were not able to address how users felt about features and restrictions of individual collections, but some used focused techniques to gather feedback that was specific and defined. In “E-book Usage in Pure and Applied Sciences,” Bierman, Ortega, and Rupp-Serrano (2010) conducted a two-stage study to address this confusion, following a widely distributed survey of faculty with individual interviews that included demonstrations of e-book features and restrictions, allowing the researchers to see exactly how each user reacted to the platform or features in question.

Many articles surveyed users and asked whether they commonly used personal e-books in addition to library collections or if they read e-books for pleasure or leisure as well as for research, but very few differentiated between those experiences and library collections in their assessments. Even with studies that attempted to determine which platforms a subject had used, they occasionally learned that the patrons could not differentiate between the various e-book platforms available. In Corlett-Rivera and Hackman's (2014) article “E-Book Use and Attitudes in the Humanities, Social Sciences, and Education,” they asked directly which of seven popular e-book platforms in their library's collection the patron had used, and the most common response (at 23%) was “I don't know.” In general, determining platform-specific feedback seems to require surveys that explicitly address only a single platform or personalized techniques such as focus groups, individual interviews, or usability studies.

What Do We Mean When We Talk About User Satisfaction?

Working definitions of “satisfaction” varied substantially, with common themes of satisfaction, preference, perception, or meeting expectations occurring throughout. Some studies simply extrapolated acceptance or satisfaction from usage data: if statistics show that a title has

been used, or that usage of a collection increased over time, then the e-book format was at least accepted by their user community. In Timothy Bailey's (2006) article "Electronic Book Usage at a Master's Level I University: A Longitudinal Study," he reviews changing usage patterns in NetLibrary usage over a span of several years, and concludes, "The ever increasing amount of use demonstrated by the statistical reports available from NetLibrary indicates the acceptance of remotely accessible monographs by the AUM Library's patrons." Usage statistics are thereby used as a metric for acceptance: the researchers show that these people have used e-books or that collection usage has increased, and they extrapolate that to mean that they liked them.

Surveys were the most commonly used instrument, typically directly asking users if they liked, preferred, or accepted e-books. Corlett-Rivera and Timothy Hackman's (2014) research is an example of such a survey that asks detailed questions about their users' habits, preferences, and experiences with e-books broadly. Others conducted more detailed studies using techniques that directly evaluate the experience users have with a certain set of e-books. In a study at Miami University of Ohio, Q-methodology was used to study their users' attitudes and opinions toward e-books, and to develop a model that groups four types of user attitudes toward e-books: book lovers, technophiles, pragmatists, and printers (Shrimplin et al. 2011). The wide range of methodologies and techniques used to investigate user satisfaction makes it very challenging to draw conclusions about the current state of research in this area.

E-Books and Print Books

The expectations on the part of users, publishers, and librarians for e-books to function like print books recurred throughout the literature reviewed. A study conducted in 2005 examined comparisons in usage between a NetLibrary package and duplicate print titles in the circulating collection. They commented on the challenges of comparing print use with electronic use, and noted that while an e-book use could be "a thirty-second browse or a serious reading," it is equally unknown whether the patron actually read the

book they borrowed when using circulation statistics to inform collection decisions (Christianson & Aucoin, 2005, p. 79). This concern is far more frequently noted in discussions of usage statistics of electronic materials than in circulations of print.

Many packages available to libraries limit usage of e-books to a specific number of users, intending to mimic the experience of a library purchasing a certain number of copies of a physical item to be made available to their users for a set period of time. Several studies noted patron frustration with this artificial restriction, particularly in light of electronic journal articles, which are commonly available to an unlimited number of users (See Owen, Riessen, Weir, DesRoches, and Noel, 2008; Staiger, 2012; and Slater, 2010, among others).

Aline Soules compares the assumption that an e-book must retain the general function of its print predecessor to the concept of the "skeuomorph," which she defines as follows: "Adapted from the world of architecture and ornamentation, a skeuomorph carries remnants of its previous existence as it evolves into its new self. It is similar to a molting snake. E-books have not yet cast off their print skins, and this colors many issues" (Soules, 2009).

Formats, Platforms, and Features

Although readers have expectations of how e-books should function, these expectations are not always met. In an attempt to reconcile expectations with provided features, most pieces that discuss DRM talk about specific features that platforms include or that agreements allow. Commonly addressed DRM features and restrictions, such as highlighting; annotating; changing font sizes; limiting page views; or the ability to print, save, copy, and paste appear throughout the literature reviewed. For example, page size is a frequently discussed feature, though on a tablet, the ability to enlarge a page may cause paragraphs or charts to separate, which can interfere with fluidity. On desktop computers, the user may select for the page to fill the screen, but then option buttons are not as readily available. If they downsize the page scale to reveal options, then the page is not as readable, because some

platform readers take away space by cluttering the frame. Additionally, some features and restrictions overlap when a platform offers a feature that doesn't actually work. For example, on some platforms, readers can only retain their annotations by exporting them. However, if this function fails to successfully e-mail readers their notes, such as in a study conducted by Muir, Veale, and Nichol (2009), the feature that was meant to enhance a user's experience becomes a restriction.

Because features are presented in different ways on different platforms, users also can mistake those differences as rights restrictions. Inconsistency is a strong underlying negative factor of a user's experience, as they expect all e-books to operate the same way, regardless of platform (Soules, 2009, p. S3). In fact, while advocating for consistency, one of JISC's (2009) studies concludes "(DRM) systems should either be removed or developed in line with actual user behaviour" (p. 44), which many other studies also insinuate.

Although these issues cause frustration for users, those who require the use of assistive technology or text enhancements can find the use of e-books overwhelming to the point of non-use. We may generally think that a digital version of a text would be beneficial to those using technology such as screen readers or those requiring text enlargement, but the reality is that these features do not always work as they should, which can alienate users from the text and keep them from getting the information they need. As Diane Michaud (2013) states, "One common misconception is that 'available electronically' means 'accessible'" (p. 24). Michaud has found that in some cases, the e-book requested will not be in an accessible format, which requires librarians to contact the publisher for at least a tagged PDF version, if it's available. Some licenses also make full e-books impossible to download, and this obstacle could have implications for how users of assistive technology make use of full-text searching and other functions designed with general usability in mind.

Christopher Stephen (2009) goes a step further and claims that "if people cannot find and access

the information, it has little [. . .] value" (p. 77), and calls for a change in the way an e-book's index is formed. He advocates for indexing "units of information" (p. 78), generally at the paragraph level, so users can find information more easily than with traditional indexes. However, navigating a paragraph-level index could become cumbersome for readers requiring accessibility measures, so the implementation of alternate keywords for such an index is essential.

The need for more accessible navigation and search functions is in line with the earlier findings of Muir and colleagues (2009), who studied the accessibility of e-books by using multiple observation techniques to examine users' habits while taking on specific tasks. They noted that their "user-centered research [was] aimed to understand not only the characteristics of behavior but also why users behave in certain ways" (p. 93), since a then-recent JISC study called for "improved user experience or functionality [that is] explicitly linked to desired outcomes" (p. 105). Overall, the team recommended "a form of adaptive personalization. The concept is to make the service adapt to the user, rather than forcing the user to adapt to the system" (p. 105). Likewise, Cassidy, Martinez, and Shen (2012) "recommend that e-book publishers and platform designers attempt to provide as many options as possible for visually adjusting a text's display, as well as options for printing and converting text to speech, in order to provide the best possible experience to the maximum number of users, regardless of abilities" (p. 330). It is evident that both users and researchers see the need for at least some level of release of DRM restrictions, particularly to accommodate users with additional needs.

Although such endeavors will take time to implement, interested groups are already addressing similar issues. The Digital Accessible Information SYstem, or DAISY Consortium, is committed to bringing accessible e-books to everyone, no matter what their needs may be. Their standards, which they make available in what they call the "DAISY book," go beyond allowing the reader to simply read the text or access audio files of the text to including time-

aligned navigation, “which enables the user to move smoothly between files while synchronization between text and audio is maintained” (2015, sec. 3). This assists in making information within an e-book findable, and therefore usable. Additionally, the World Wide Web Consortium (W3C) outlines four principles in developing accessible web-based resources. They stress that information should be:

- Perceivable—Information and user interface components must be presentable to users in ways they can perceive
- Operable—User interface components and navigation must be operable
- Understandable—Information and the operation of user interface must be understandable
- Robust—Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies (WCAG 2.0 Guidelines, 2008)

Although these principles are designed to relate to accessibility measures for web-based sources, they also echo the findings of many e-book usability studies. The principles can have major implications on how we envision e-book usability and are highlighted in recent studies as being of value to e-book design.

The concept of accessibility was not an original component of our charge, but throughout our research, it is clearly of serious importance when we consider e-book usability. If users are unable to perceive the information, operate the user interface, and understand and interpret the information they are given, e-books and their formats are less useful, no matter how many simultaneous users are allowed or what their preferences may be.

Next Steps

The original charge for the user experience research team was to examine the published literature on user satisfaction with e-books to establish how libraries currently assess and

evaluate patron satisfaction with their e-book collections. Although the findings of this study were valuable, we realized that it is necessary to depart from the published literature to find out how satisfaction research is being put into practice in libraries.

How Recommendations From Studies Are Being Implemented in Practice

Throughout the published literature, researchers make determinations about user satisfaction with e-books and sometimes recommend action points that could help remedy issues that users are having. These action points can vary: some call for purchasing certain types of collections, or endorse e-books as a format to be added to an academic library’s collecting profile. Others recommend additional promotion or discovery tools to promote their e-books more widely. Many suggest that more instruction or user guides would help users locate and use special features like annotation or highlighting. Reviewing and coding the content of the meta-study to analyze these various types of recommendation may reveal interesting patterns.

Even though recommendations for practice are posed in many articles written by librarians who work in a collection development unit, it is impossible to extrapolate whether those suggestions are being implemented in practice, or how they are being conveyed to the researcher’s library team. We hope to investigate how published recommendations may or may not be reflected in institutions’ practices by following up with the writers of these pieces via surveys, interviews, and other ways. Also, additional questions have arisen about researchers’ affiliations and roles. Are there distinctions or differences between studies done by librarians with various roles in a library, or between practicing librarians and library science faculty members? Does research sponsored or conducted by a publisher’s staff address these topics in the same way?

Finding and Starting Other Discussions

Even though a number of published articles convey usable statistics and conclusions, the bulk of the research/work that *directly informs practice*

is not showing up in published journals. For this reason, we intend to move away from published pieces in two ways to investigate library practice that may not be recorded in the circulating literature.

First, many LIS professionals present their work on user satisfaction at local, state, and regional conferences, rather than publishing articles or reports. An immediate next step for our research team is to conduct a review of available conference proceedings for library conferences that focus on relevant areas, such as the Charleston Conference, ER&L, and ACRL, among others. We intend to investigate conference proceedings in the same ways in which we addressed the journal literature in order to determine which researchers we would like to contact for further discussion to find out the goals of their work and how they have designed their tasks.

Second, there are certainly even more initiatives that are not being put in front of the public eye, but instead remain as in-house, non-published, practical initiatives. They may not be labeled as *research*, but instead as *assessment*, designed to inform library practice. We hope to identify individuals and libraries that are investigating UX issues in their own institutions to have conversations about the necessity and goals of these initiatives, as well as their findings and next steps. A simple mention of this step at the Charlotte Initiative working group meeting uncovered at least three initiatives currently underway in members' institutions. Conversations with the people conducting these assessments will prove valuable, since they will be trying to implement or alter actual practice in their libraries.

Recommendations for Replicating or Designing Studies of E-Book UX and Satisfaction

In hopes of influencing the current direction of research on e-book user experience, we have defined criteria that you or your institution can use to guide assessments of user experience with e-books in academic library settings.

- Clearly identify the platforms in question. Discussing all platforms together leads to confusion as to how specific platforms handle certain functions. In these cases, participant responses aren't as helpful because readers cannot match the responses to the specific constraints the users are working within.
- Identify the current e-book format, as there can be multiple formats used on one platform
- Consider usage and accessibility separately. Different things work for different people. Features like page enlargement and variable fonts seem to aid in accessibility, but may conflict with adaptive software or assistive technologies that an individual prefers to use.
- Consider observing users' actual behaviors. When answering survey questions, many users may imagine other experiences they have had, and not the ones the survey intended to capture. For example, if the survey asks about library e-books, users may end up thinking of Kindle books or even very specific, one-time experiences. Observation can help researchers better understand how users experience e-books in very specific contexts.

While user experience remains complex and often frustrating to study, considering the perspectives of librarians, publishers, and users together is essential in this stage of development of the academic e-book market.

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